

3. Contributions to a Study of the Dragonfly Fauna of Borneo.—Part III. A Collection made on Mount Kina Balu by Mr. J. C. Moulton in September and October 1913. By F. F. LAIDLAW, M.A. (Camb.), F.Z.S.

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List of the Species.

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LIBELLULIDÆ.

LIBELLULINÆ.

1. *Orthetrum glaucum* (Brauer)*.
2. *O. testaceum* (Burm.).
3. *O. elelia* Selys.
4. *Trithemis aurora* (Burm.).
5. *T. festiva* (Ramb.).
6. *Zygonyx iris* Selys.

CORDULINÆ.

7. *Macromia euterpe*, sp. n.
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AGRIONINÆ (=CALOPTERYGINÆ
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CENAGRIONINÆ (=AGRIONINÆ
sensu Selys).

18. *Celiecia nemoricola* Laidlaw.
19. *Protosticta kinabaluensis*, sp. n.
20. *Ceriagrion* sp.
21. *Stenagrion dubium* (Laidlaw).

ANISOPTERA

LIBELLULIDÆ.

LIBELLULINÆ.

1. ORTHETRUM GLAUCUM (Brauer).

Orthetrum glaucum Ris, Cat. Coll. Selys, x. pp. 233-234 (1909).

* [The parentheses around the names of authors placed after scientific names in this paper are used in accordance with Article 23 of the International Rules on Nomenclature (Proc. 7th Int. Cong. Boston, 1907, p. 44 (1912)).—EDITOR.]

2 ♂♂ ad. 30.9.13 (Nos. 29, 69, 1914). 1 ♂ juv. 16.9.13 (No. 51, 1914). 1 ♀. 4.9.13, circ. 3000 ft. (No. 73, 1914). 2 ♀♀. 16, 30.9.13 (Nos. 3, 35, 1914).

This species has been captured previously on Kina Balu by Everett.

2. *ORTHETRUM TESTACEUM* (Burma).

Orthetrum testaceum testaceum Ris, Cat. Coll. Selys, x. p. 235 (1909).

Orthetrum testaceum, id. Ann. Soc. Entom. Belg. lv. 1911, p. 252.

8 ♂♂. 30.9.13 (Nos. 26, 27, 28, 30, 31, 33, 36, 71, 1914).

3. *ORTHETRUM CLELIA* Selys.

Orthetrum pruinoseum clelia Ris, Cat. Coll. Selys, x. pp. 239, 242 (1909).

3 ♂♂, 1 ♀. 29-30.9.13 (Nos. 9, 34, 40, 67, 1914).

These specimens must, I believe, be referred here. I note, however, that the adult male has the third abdominal segment dusted over with a bluish bloom, as well as the first and second segments.

4. *TRITHEMIS AURORA* (Burma).

Trithemis aurora Ris, Cat. Coll. Selys, xiv. pp. 775-778, fig. 442 (1912); id. Ann. Soc. Entom. Belg. lv. 1911, p. 254; Laidlaw, Records Indian Mus. viii. (iv.) p. 338 (1914).

1 ♂. 1.10.13 (No. 21, 1914). 1 ♀. 20.9.13 (No. 63, 1914).

5. *TRITHEMIS FESTIVA* (Ramb.).

Trithemis festiva Ris, Cat. Coll. Selys, xiv. pp. 796, 798, figs. 456, 457 (1912).

2 ♂♂. 16.9.13 (No. 18, 1914). 1 ♂. 16.9.13 (No. 50, 1914), immature.

This species has been taken previously on Kina Balu by Everett.

6. *ZYGOXYX IRIS* Selys.

Zygonyx iris Ris, Cat. Coll. Selys, xiv. pp. 820, 823, fig. 478 (1912).

1 ♂. 20.9.13 (No. 64, 1914). 1 ♂. 1.10.13 (No. 10, 1914).

CORDULINÆ.

7. *MACROMIA EUTERPE*, sp. n. (Text-figs. 1 & 2.)

3 ♂♂, 2 ♀♀. 23.8.13, 10, 11, 12.9.13 (Nos. 7, 13, 39, 56, 58, (1914).

Length of abdomen: ♂ 40+3 mm., ♀ 44 mm.

Length of hind wing: ♂ 43 mm., ♀ 46 mm.

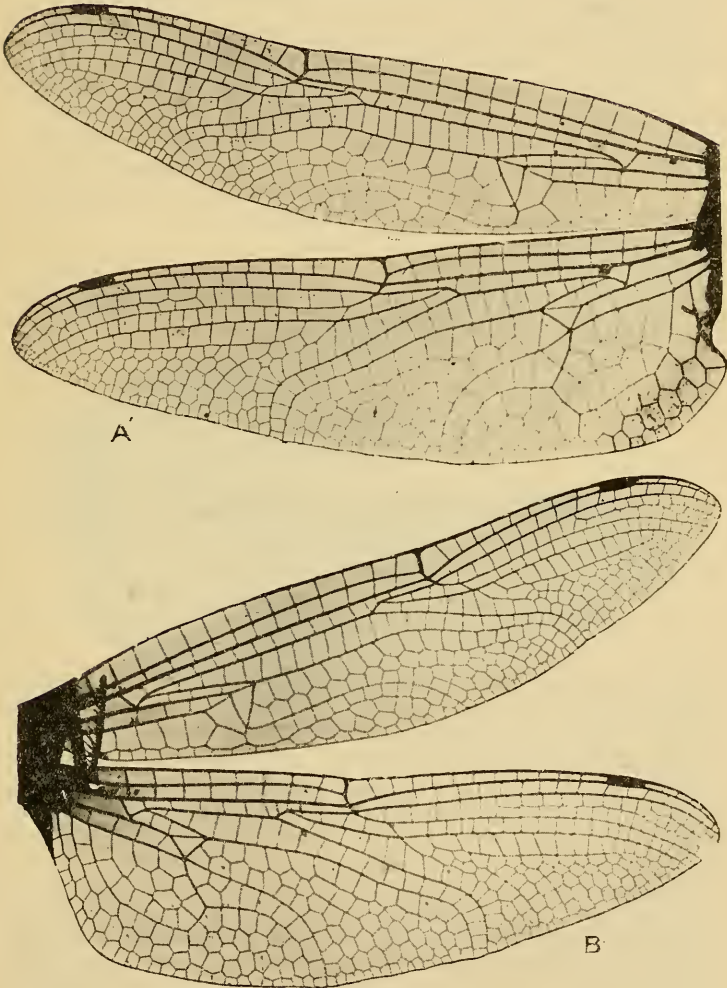
Length of pterostigma: 2.5 mm. or a trifle less.

Venation formula:—

An.n.	Pn.n.	Suprat.	M.
14	9	3	5
—	—	—	—
9	11	2	4

Extremes ... $\left\{ \begin{array}{llll} (13-15) & (7-10) & (2-3) & (4-5) \\ (8-10) & (10-12) & (1-2) & (4-5) \end{array} \right\}$.

Text-figure 1.



Macromia euterpe.

Wings of type male (A) and female (B).

♂. Wings without any trace of colouring, even at the extreme base. Pterostigmata black.

Head: Lower and anterior surfaces entirely russet-brown. Vertex a rich metallic blue.

Prothorax brown.

Thorax: Dorsal surface brown, its upper third with a metallic green reflex. Sides also metallic green, with a brown band of moderate width enclosing the stigma, continuous above with the brown interalar sinus, and below with the brown colouring of the under surface.

Abdomen: Segments 1, 2, 3 a little dilated, as are 7, 8, 9, the three latter each with a marked dorsal longitudinal keel; 10 with a similar keel, which is raised to form a well-marked projection at the base of the segment. The abdomen is black, save for a square yellow mark at the base of 7 on its dorsal side; this yellow mark covers roughly the first quarter of the segment.

1, 2, 3 have a distinct metallic-green lustre, which fades gradually and disappears almost entirely on 4.

The *legs* are long and entirely black.

Anal appendages (text-fig. 2) black, the lower one longer than the upper pair and distinctly bituberculate at its extremity, and

Text-figure 2.



Anal appendages of *Macromia euterpe*.

with a slight upward curve. The upper pair each carry a very small tooth on their outer margin at the middle of their length. This tooth is so small that it may be spoken of as "obsolescent."

The female in colouring scarcely differs from the male; the bases of the wings have a very faint smoky-yellow tinge.

The abdomen is, on the whole, stouter than in the male, and consequently segments 2, 3 and 7, 8, 9 not so markedly dilated.

The types ♂ ♀ will be deposited in the British Museum. Co-types ♂ ♀ in Sarawak Museum and ♂ in my collection.

In general, this species approaches *M. westwoodi* Selys. I have some doubt as to whether the male from Banka described by Selys in the 2^{me} Addit. au Synops. Cord. is really co-specific with the female which is the type of the species. In any case the male of *M. euterpe* differs from that male in details of venation, in the position of the boss on segment 10, and in the

character of the upper anal appendage, which in Selys's specimen is said to possess "une forte dent externe," a description which scarcely applies to the three males of *M. euterpe* now before me. The females for their part differ in their lesser stature, as well as in venation, from the type of *M. westwoodi*, which appears to have been lost.

8. *MACROMIDIA FULVA*, sp. n. (Text-fig. 3.)

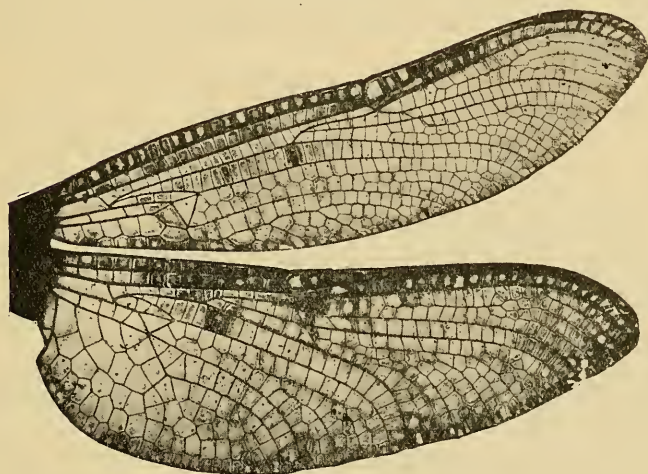
1 ♂. 11.9.13 (No. 20, 1914), fully adult.

Hind wing 35 mm., abdomen 37 mm., pterostigma 3 mm.

Venation formula:—

An.n.	Pn.n.	Cu.a.	Suprat.	A.A.
21—22	12—11	3—3	3—3	—
10—12	15—16	3—4	2—2	9—8

Text-figure 3.



Wings of *Macromidia fulva*, ♂.

Anal angle rather more acute, and anal margin of hind wing rather more deeply convex than in the example of *M. rapida* figured by Martin.

Wings with a marked smoky-brown tinge, deeper in costal and postcostal spaces and at extreme base. Pterostigmata grey-brown.

Head: Eyes dark brown; upper lip yellow-brown; the rest of the head entirely dull brown, with a slight metallic violet reflex on the frons.

Prothorax dull brown.

Thorax: Dorsal surface dull metallic greenish brown, with an

ill-defined antehumeral band of yellow-brown. Sides of the same colour as the antehumeral band, with a broad metallic green-brown band under each wing.

Abdomen generally very dark brown; segments 2-7 each with a ring of lighter brown distally, in 2-4 occupying nearly the hinder half of the segment, and in 2 extending forward laterally nearly to the anterior end. In each case the extreme apex of the segment has a darker ring; 8-10 are uniformly very dark brown.

Legs reddish brown, darker at the articulations and terminal extremities.

Anal appendages uniform dark brown in colour, similar in form to those of *M. rapida*, but the lower appendage is nearly equal in length to the upper pair. The lower margin of each of the latter is more regularly curved than in that species, and there is a small projecting median ventral tooth on each.

Very closely allied to *M. rapida* Martin, the type of the genus, which was captured in Tonkin.

The type-specimen of *M. fulva* is deposited in the British Museum.

ZYGOPTERA.

AGRIONIDÆ.

AGRIONINÆ (=CALOPTERYGINÆ *sensu* Selys).

9. MATRONOIDES CYANEIPENNIS Foerster.

Matronoides cyaneipennis Foerster, Wiener Entom. Zeitung, 1897, iii.; id. Ann. Soc. Entom. Belg. xli. 1897 (sep.), pp. 1-5, fig. ii.; Laidlaw, Journ. Roy. Asiatic Soc. Straits Branch, no. 63, Dec. 1912, p. 95.

14 ♂♂, 5 ♀♀ (Nos. 78-89, 1914), taken between Sept. 4th and Sept. 19th, 1913, mostly on Sept. 11th. Two males were captured at about 3000 ft. above sea-level.

10. VESTALIS AMÆNA Selys.

Vestalis amœna Kirby, Cat. Odon. p. 103 (1890); Karsch, Entom. Nachr. xvii. 1891, no. 16, p. 243; Kruger, Stett. Entom. Zeit. 1898, p. 75; Laidlaw, Proc. Zool. Soc. Lond. 1902, i. p. 87; Williamson, Proc. U.S. Nat. Mus. xxviii. p. 183 (1904); Ris, Ann. Soc. Entom. Belg. lv. 1911, p. 234.

11 ♂♂, 5 ♀♀. One ♂, 3000 ft., 4.9.13; the other specimens 10-11.9.13, no data (Nos. 91-100, 1914).

De Selys has commented on the considerable differences in size existing in a number of specimens he examined from Labuan (3^{me} Addit. Synops. Calopt. p. 475). The extremes noted by him were as follows:—

Abdomen: ♂ 38-50 mm., ♀ 35-34 mm.

Lower wing: ♂ 31-36 mm., ♀ 32-35 mm.

Measurements of the hind wings of Mr. Moulton's specimens indicate possibly that the species presents an example of discontinuous variation. In eight of the males the wing-length is about 37.5 mm., with an extreme range between 37 mm. and 38.5 mm. In all these specimens the length of the abdomen lies somewhere about 48-52 mm.

In the rest of the males the length of the hind wing is decidedly less, about 34 mm., and of the abdomen roughly 44 mm.

Three of the females are large (length of hind wing 37.5 mm., 37.5 mm., 39 mm. respectively); the other two smaller, with a measurement of 35 mm. apiece. The length of abdomen varies broadly as the length of the hind wing. The figures are, of course, too small to admit of any certainty, but suggest a discontinuous variation in both sexes.

The more mature specimens of both sexes, whether large or small, show the smoky shading of the wings, especially near the margins. The younger individuals have the body of an intense emerald-green, in the older a more golden tone prevails.

11. PSEUDOPHÆA SUBNODALIS, sp. n.

13 ♂♂, 1 ♀. 16.9.13, 30.9.13, 1.10.13 (Nos. 11, 14, 15, 23, 24, 52, 60, 70, 72, 75, 1914).

Hind wing: ♂ 27-28 mm., ♀ 27 mm. About 26 An.n.

Abdomen: ♂ 33-35 mm., ♀ 27 mm. About 28 Pn.n.

This species is, I believe, in all probability identical with the "larger examples" spoken of by Selys in his original description of *P. subcostalis*. From examples of both species that I have been able to examine from several localities they differ in certain well-marked and constant characters.

P. subnodalis is distinctly larger. In none of the series is there a black ray in the subcostal space of the fore wing, and on the hind wing the space between R and M_{1+2} is always uncoloured up to the level of the nodus. The auricles on the second abdominal segment are relatively and actually larger than in the allied species.

In the fully adult male the whole body is a rich velvety black, excepting the upper lip and genæ, which are blue in colour and have a porcellanous texture.

Younger males show traces of pale yellow dorsal and lateral markings on the thorax. Both pairs of wings have a distinct brownish tinge, deepest in the costal spaces. The lower wing has its basal third, roughly speaking, hyaline; but the subcostal space in several specimens has a dark ray, its middle third is metallic blue or green, and its distal third is black. As already remarked, the space bounded by R and M_{1+2} is always hyaline up to the nodus; for the rest the inner margin of the metallic-blue colouring is irregular, but advances most nearly to the base of the wing in the space between M_3 and M_4 . The outer margin

of the colouring is a straight line approximately at right angles to the long axis of the wing.

(?) 1 ♀. 1.10.13 (No. 75, 1914).

Probably belongs to this species, which appears to be the most abundant in the district where the present specimen was captured. Wings with smoky tinge. Head as in the male, but with a small pair of orange spots, one on either side of the ocelli.

Prothorax black, with two small orange spots lying one over the other on either side.

Thorax black, pulverulent below, marked with yellow as follows:—A dorsal band and a band running along either side of the humeral and lateral sutures, the sutures themselves marked with a black line.

Abdomen black, sides of segment 1 yellow, 2, 3, 4 with a yellow lateral band, which is continued on 5, 6, and 7 as a very fine line. Appendages black.

Legs black, the femora marked on their outer sides with yellow.

The type-male and the female described above will be deposited in the British Museum.

12. PSEUDOPHEA BASALIS, sp. n.

2 ♂♂. Kina Balu, 11-18.9.13 (Nos. 49, 65, 1914).

Hind wing 27 mm., abdomen 35 mm. An.n. 22. Pn.n. 29.

Distinguished from its allies especially by the colour-pattern of the hind wings, by the relatively small size of the auricles on the second abdominal segment, and by the well-rounded vesicle of the penis.

In both specimens the whole body and its appendages are of a rich velvety black, excepting the upper lip, the genæ, and a space on either side of the eyes in front, which is porcellanous in texture and dull grey-blue in colour. The thorax is pulverulent below.

The upper pair of wings have a smoky tinge, especially evident on the antenodal costal and subcostal spaces and at the apex of the wings.

The basal four-sevenths of the hinder wing is of a rich metallic green or blue, excepting the antenodal costal and subcostal spaces, the median space, the quadrilateral and the submedian space. These are all very deeply tinged with black. The apical three-sevenths of the wing is entirely black, with metallic reflex. The boundary between the two colours is a straight line at right angles to the long axis of the wing, lying some 10 cells beyond the nodus. The type-male is deposited in the British Museum.

13. PSEUDOPHEA SUBCOSTALIS Selys.

1 ♂. 20.9.13 (No. 62, 1914).

Hind wing: length 24 mm.

A typical example of the species. The presence or absence of

a dark line in the subcostal space of the fore wing seems to be a character dependent on the maturity or otherwise of the individual. I have seen several examples from Baram and from Saribas, and except in this particular their characters are constant. The auricles are relatively a little smaller and less prominent than in *P. subnodalis*, and the space between R and M_{1+2} before the nodus is occupied by opaque metallic-green colour in all the specimens I have seen.

14. *DEVADETTA ARGYROIDES* (Selys).

Devadetta argyroides Kirby, Cat. Odon. p. 111.

Tetraneura argyroides Martin, Mission Pavie (sep.), p. 17.

Devadetta argyroides Laidlaw, Fascic. Malay. Zool. pt. I, p. 199.

5 ♂♂, 6 ♀♀, taken during September. Two females are noted as having been collected, one at 2800 ft., the other at 3000 ft. altitude. (Nos. 1, 2, 5, 6, 12, 19, 42, 46, 53, 66, 1914.)

RHINONEURA, gen. nov.

A genus belonging to the legion *Libellago*, and closely allied to *Rhinocypha*, to which genus the general characters of the venation indicate near relationship. The wings are long and narrow, both pairs of equal length, pterostigmata large and inflated. Abdomen long and fairly slender, surpassing the wings considerably in length. Segments 3-7 (in the male) each about four times as long as segment 2. Legs long and slender, but not reaching to the end of segment 4 when adpressed.

15. *RHINONEURA VILLOSIPES*, sp. n. (Text-figs. 4, 5 A.)

1 ♂. 6.9.13 (No. 59, 1914). Kina Balu.

Length of abdomen 35 mm., of hind wing 27 mm., of pterostigma 2.5 mm.; breadth of hind wing 4.5 mm.

The insect resembles in its proportions a *Diphlebia*, but is, of course, smaller than the species of that genus.

Wings (text-fig. 5 A) very narrow, transparent, with a very faint yellow tinge, except for the extremity of the hind wing, which becomes smoky brown at its apex from the level of the middle of the pterostigma. The latter is large, brownish black, with its costal and anal borders convex. Quadrilateral long and narrow, in the fore wing divided by 3 cross-nerves, in the hind wing by 4. "Sectors of the arculus" separated at their origin. 13-14 antenodal costal nerves; of these only two, viz. the first and third, are continuous with the nerves of the postcostal space, and the third lies at the level of the arculus, except in the right hind wing, where an extra (?) non-continuous antenodal lies before the level of the arculus; $\frac{26-29}{23-25}$ postnodals. The cells of the wings show none of the antero-posterior elongation characteristic of certain species of *Rhinocypha*. The nodus is distinctly proximal.

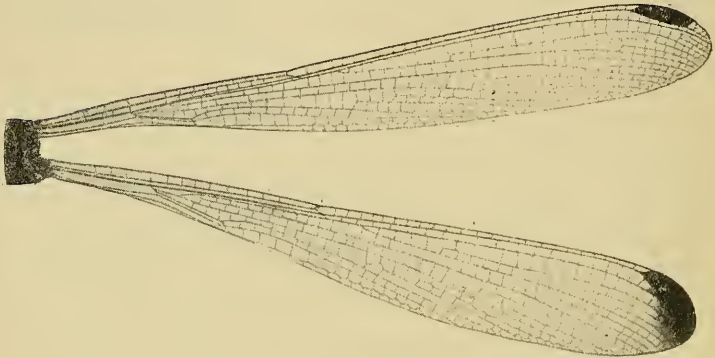
to a point midway between the base of the wing and the pterostigma.

Head: Lower surface black, extremities of lower lip yellow. Upper lip yellow with a fine vertical median black line; genæ yellow; the rest of the upper surface black.

Prothorax black, a pair of minute yellow dots on the anterior lobe, and on either side three irregular yellow marks.

Thorax dorsally black, with a narrow irregular antehumeral band of an orange-yellow colour, broken up into three parts on either side: of these the uppermost part curves outwards and downwards to join the yellow of the lateral surface. There is a small black mark at the top of the second suture. Under surface black.

Text-figure 4.



Wings of *Rhinoneura villosipes*, ♂.

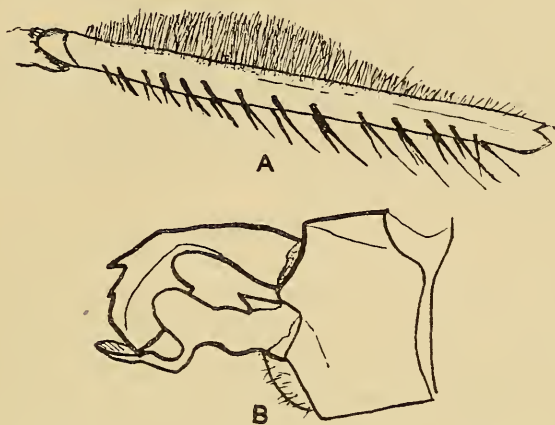
Legs black, anterior surface of trochanters brown. The legs are long and slender. The third pair of femora carries on the dorsal surface of each a remarkable "fur" composed of very numerous short hairs, the longest of which are scarcely equal in length to the normal cilia of the anterior margins (text-fig. 5 A). The tibiæ are not dilated. The femora of the second pair of legs show a trace of "fur" similar to that of the third pair, but by no means so well developed.

The *abdomen* is entirely black, save for the dorsal surfaces of segments 1, 2, 3, 4, which are marked with brick-red, with black terminal rings. Segment 2 has a small black L-shaped mark running back from its anterior margin. In 3 the narrow black apical ring encloses a pair of small, circular, red points. The red colour of 4 extends about four-fifths of the length of the segment, running to a fine point apically as it disappears.

Anal appendages black, the upper pair longer than segment 10, cylindrical, sharply incurved at their middles, crossing each other

near their apices where their inner sides are a little flattened. Lower pair very short, conical, parallel, and slightly curved upwards.

Text-figure 5.



A. Femur of *Rhinoneura villosipes*, ♂, showing hairs.
 B. Anal appendages of *Protosticta kinabaluensis*, ♂.

This very remarkable insect suggests several interesting problems. Its wings, as will be seen from text-figure 4, have all the characters which mark the small group of genera to which it belongs, and these characters in all the other genera are associated with a short depressed abdomen. The wings show a specialization approaching the condition found in the Cœnagrioninæ, unexcelled in any other group of Agrioninæ, and the question arises as to whether the specialization of the wings preceded the development of a depressed short abdomen, or whether this latter condition came into existence earlier. Or, put differently, is the long and comparatively slender abdomen of *Rhinoneura* a primitive condition lost in allied genera; or does it mark a departure in the evolution of the form which will approximate physically still nearer to the slender-bodied Cœnagrioninæ?

One would like to know something of the meaning of the "fur" on the hindermost pair of femora, but unfortunately speculation on this point is useless.

16. RHINOCYPHA MOULTONI, sp. n.

4 ♂♂, 2 ♀♀. 11.9.13, 16.9.13, 1.10.13 (Nos. 16, 22, 25, 57, 68, 1914).

Length of abdomen, ♂ 18 mm., ♀ 17.5 mm.; of hind wing, ♂ 22 mm., ♀ 24.5 mm.

Male. *Wings* without markings, with a faint yellow tinge over the whole. Pterostigma black, a little inflated, covering 4+ cells, 2 mm. long. An.n. 14, Pn.n. 20, on fore wing. Quadrilateral on all wings divided into 3 cells. One row of cells only between Cu_2 and anal margin of wing. Cu_2 begins to be irregular 3 cells beyond level of quadrilateral.

Head: Labium yellow, mandibles black; labrum black, with a pair of large yellow spots. Anteclypeus black; postclypeus black, with a large yellow mark at its summit. Frons black, with a pair of large yellow spots between the antennæ. Base of antennæ and a minute spot on either side of the ocelli, genæ, and margin of frons along the eye up to the level of the ocelli yellow, as is a pair of small spots on the occiput.

Prothorax black, its anterior margin yellow; a lateral spot and a mark at the base of the first pair of legs of the same colour.

Thorax black, a tawny orange antehumeral stripe, incomplete above, and the spots at the base of both pairs of wings of the same colour, as is a broad lateral band extending from the base of the second pair of legs to the metepimeron. In addition there is a pale yellow line covering the upper half of the humeral suture. Under surface black, with yellow at the base of the limbs.

*Abdomen**: The dorsal markings are brick-red, the lateral yellow. Ground-colour black.

1 has a basal antero-lateral spot, dorsal surface entirely black.

2-9 have antero-dorsal marks, broader towards the bases of the segments, separated by the mid-dorsal carina, diminishing progressively in size from 3 to 9—in 2 and 9 occupying about one-half of the total length of the segment, in 3 to 8 more than one-half.

2-8 have antero-lateral marks, confluent with the dorsal marks, but diminishing more rapidly in size.

2-6 have postero-lateral spots, in 2 confluent with the antero-lateral, in the remainder distinct.

Legs black, coxæ, trochanters, and a mark on the anterior surface of the femur yellow.

Anal appendages black, the upper pair twice as long as segment 10, curved inwards to meet at their extremities; lower pair about as long as 10, conical and straight.

Female. Colouring of the head, prothorax, thorax, and legs as in the male, but the yellow or orange is less vivid. Abdomen entirely without the dorsal series of marks; antero-lateral marks extend from segments 2 to 7; postero-lateral spots from 1 to 9, but very small on the last three. Wings with a deeper tinge of yellow than in the male.

This species is very nearly allied to an unnamed species noted

* In describing the colouring of the abdomen I employ a modification of the terms suggested recently by Mr. Kennedy (Proc. U.S. Nat. Mus. xlvii. p. 114, 1913).

by me as occurring on Mt. Batu Lawi (Journ. R. Asiat. Soc. Str. Br. no. 63, p. 95). It is distinguished from the latter readily by the yellow mark on the summit of the postclypeus and by its broader pterostigma, as well as by other characters.

17. RHINOCYPHA sp.

1 ♂ juv. 20.9.13 (No. 41, 1914).

Probably a young example of *Rhinocypha biseriata* Selys, a well-known Bornean insect.

Foerster has described (Ann. Soc. Entom. Belge, xli. 1897, p. 210) *Rhinocypha stygia* from Kina Balu. This is the only species not included in Mr. Moulton's collection of which I can find a record.

CENAGRIONINÆ (= AGRIONINÆ sensu Selys).

18. CÆLICIA NEMORICOLA Laidlaw.

Cælicia nemoricola Laidlaw, Journ. R. Asiat. Soc. Str. Br. no. 63, p. 95 (Dec. 1912).

? = *C. membranipes* (Ramb.).

6 ♂♂, 2 ♀♀, Sept. 1913 (43, 45, 48, 54, 55, 1914). One ♀ from 3000 ft.

I have carefully compared this series with the co-type of my *C. nemoricola* and cannot distinguish them. Dr. Ris has also kindly examined an example of each series with the same result. All the Kina Balu specimens show a very distinct antehumeral band of a blue colour which is evidently much faded in the Batu Lawi individuals, and, moreover, the last two abdominal segments in the present series are blue above, whilst in the types of *C. nemoricola* no blue colour was evident.

The two female specimens I cannot distinguish from the description of the female of *C. membranipes* (Ramb.), to which *C. nemoricola* is certainly very closely allied. In the latter species the upper anal appendages are black and not blue. The measurements given for it (*loc. cit.*) are incorrect, and should read: Abdomen 46 mm., hind wing 28 mm. These are the proportions of the specimens from Kina Balu, all of which appear to be less fully mature and less completely dried up than are the types.

The type of *C. nemoricola* and examples of both sexes of the present series are to be deposited in the British Museum.

19. PROTOSTICTA KINABALUENSIS, sp. n. (Text-fig. 5 B.)

1 ♂. 5.9.13 (1914, 38) (No. 17).

Length of abdomen 34 mm., of hind wing 22 mm.

13 antenodals in fore wing. CuN lies halfway between base of wing and level of An₁. The rudiment of Cu₂ lies rather nearer to An₂ than to An₁. Pterostigma rather long, covering more than one complete cell, its costal margin shorter than the anal, its proximal side more oblique than the distal. The veins surrounding it thickened. Venation generally that characteristic

of the genus. Wings hyaline with green and lilac iridescence, R_3 rises from nodus, M_3 distal.

Head: Upper surface entirely black with a feeble bronze reflex, except for a pale band on the anteclypeus and for the third joint of the antennæ which is light brownish yellow.

Prothorax: Middle lobe primrose-yellow, anterior and posterior lobes green-bronze.

Thorax: Dorsal surface entirely green-bronze; lateral surface of the same colour with a fairly broad primrose-yellow band; the metepimeron likewise primrose-yellow, as are the under surfaces.

Abdomen dull bronze-black, the under surface paler, and segments 3-8 each with a primrose-yellow apical triangular mark on the ventral side.

Legs yellow, posterior surface of tibia dark brown as is the tibio-femoral articulation. Tarsi becoming darker.

Anal appendages longer than segment 10. Upper pair bronze-black, lower pair rather paler. The upper appendages are each curved strongly downwards, ending in a flattened leaf-shaped lobe, its apex directed downwards, carrying well-developed spines on its margin.

The lower pair are each stout and club-shaped, with a strong internal tooth near the base. Towards their outer extremities each carries a curious slender projection curving at first downwards and then backwards, flattened laterally at its apex (text-fig. 5 B). These appendages present a very striking appearance, and are quite unlike those of the only other male of the genus in which the appendages have been figured (*P. foersteri* Laidlaw, in Fascic. Malayensis, Odonata, pt. 2, sep., p. 9, fig. 2 A, B).

It seems to me perfectly reasonable to suppose that this specimen belongs to a species distinct from *P. versicolor* Laidlaw, a species of which only the female is known.

At present five species belonging to the genus have been described. Two of these are recorded from the Celebes, i. e. *P. simplicinervis* Selys and *P. gracilis* Kirby. These are both large species and each has a wing-measurement of about 30 mm. The three remaining species (*P. foersteri*, *P. versicolor*, and *P. kinabaluensis*) described by me are smaller, with a wing-measurement of less than 25 mm.

P. foersteri, from the Malay Peninsula, has its anal appendages quite different in appearance from the present species. *P. versicolor* is distinguishable by its remarkable colouring.

20. CERIAGRION sp.

1 ♂, segments 6-10 of abdomen missing (No. 70, 1914).

Belongs probably to an undescribed species.

At first sight it would pass for *C. erubescens* Selys. However, the origin of A^* is distinctly proximal to CuN ; the dorsum of the thorax is of a rich, warm, brown colour, with a coppery reflex.

STENAGRION, gen. nov.

Wings petiolated to the level of A*. Quadrilateral long. M_3 rises from subnodus, Rs a little distal. Tarsal claws toothed. Body very slender; male with simple upper anal appendages, female with simple posterior prothoracic margin, no ventral spine on eighth abdominal segment. Postocular spots present.

This genus would appear to be in series with *Pseudagrion*, *Stenobasis* (= *Archibasis*), and *Teinobasis*. It differs from them all by the simple character of the anal appendages of the male and in the relative length of the upper margin of its quadrilateral, in which respect it resembles *Amphicnemis*.

21. STENAGRION DUBIUM (Laidlaw).

Pseudagrion? dubium Laidlaw, Journ. R. Asiat. Soc. Str. Br. no. 63, 1912, p. 97, pl. fig. 5.

1 ♂, 2 ♀ ♀. 6, 9, 16.9.13 (Nos. 17, 47, 73, 1914).

These specimens undoubtedly belong to the species described by me as *Pseudagrion? dubium* (loc. cit.).

They show that there is a well-defined pair of postocular spots, nearly obliterated in the type-specimen; and in addition, on the dorsum of the thorax on either side of the middle line lies a broad blue band, interrupted at its middle by a transverse black line. These markings are present in both sexes, but in the type-specimen, which is a very mature individual, they can scarcely be distinguished.